

# FORMATION OF SYSTEMIC MANIFESTATIONS AND DEFINITION OF PROGRESSION PREDICTORS OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE USING A FACTOR ANALYSIS

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*Abstract*

The new information contained in the GOLD 2018 is based on innovative approaches to the causes of the development and spread of chronic obstructive pulmonary disease (COPD), suggesting systemic manifestations are the basis of the pathogenesis of the disease. According to the results of factor analysis, systemic manifestations and significant factors of progression of COPD are associated with multiple changes in thyroid homeostasis, which manifest themselves at the level of vertical regulation (hypophysis-thyroid-peripheral conversion). Other dysfunctions, such as cytokines, apoptotic, metabolic, which are formed on the background of hypocortisolemia by hypothyroidism of adaptive type, are an important contributors as well.

*The aim of the study.* Assessment of the character of metabolic-immuno-hormonal interaction at COPD and it's effect on the formation of systemic manifestations and the determination of the predictors of disease progression, through a dispersion analysis of a full-featured experiment.

*Results and discussion.* The main predictors of the progression of COPD and the formation of it's systemic manifestations are thyroid imbalance (the level of free thyroid hormones), cytokine dysregulation (IL-1 $\beta$  and IL-10), oxidative stress (OMB NX and MAPI blood), hemarheologic insufficiency (according to A IIII, XIII factor), as evidenced by the Variamaks received by us with the normalization of Kaiser.

Relation between endocrine, immune and metabolic systems in COPD has interactive character and refers to the interaction endocrinocytes, immune cells and circulating cells bronchopulmonary parenchyma and their impact on the systemic manifestations and progression of the disease. This interaction is based on the ability of metabolic factors (products of lipid peroxidation, oxidative modification of proteins, proteolytic activity of blood) and cytokines to affect the expression of free cortisol and thyroid hormones and their receptors, and vice versa.

*Conclusion.* The results confirm the existence of a three-way metabolic-endocrine-cytokine complex, the functioning of which ensures the adaptation of the organism to adverse environmental factors in COPD, that is, a general hypothyroid-adaptive reaction.

**Key words:** chronic obstructive pulmonary disease, systemic effects, cytokine and apoptotic regulation, thyroid regulation, inflammation.

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